CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-____

FOR
HJ BAKER & BRO. INC AND THE PORT OF STOCKTON
MOLTEN SULFUR PROCESSING PLANT
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring an industrial facility. Pursuant to Section 13267 of the California Water Code, the Discharger must comply with this MRP. Failure to comply with this MRP constitutes noncompliance with the Water Code, which can result in the imposition of civil monetary liability. The Discharger must not implement any changes to this MRP unless a revised MRP is issued by the Executive Officer.

MONITORING

The Discharger must comply with the provisions of this MRP and the cleanup and abatement order. All monitoring must be conducted in accordance with a Sample Collection and Analysis Plan, which must include quality assurance and quality control standards which are acceptable to the Executive Officer. All samples should be representative of the volume, nature, or matrix of material sampled. The time, date, and location of each sample must be recorded on the sample chain of custody form. If methods other than U.S. EPA-approved methods or *Standard Methods for the Examination of Water and Wastewater*, latest edition, are used, the exact methodology must be submitted for review and approval. All monitoring program groundwater monitoring wells, surface water monitoring points, leachate, and tunnel water must be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables 1 through 6. All monitoring results must be reported and all relevant fact shall be fully disclosed.

Volume Discharged Into and Removed from the Fully Enclosed Unit

The Discharger must monitor any liquids discharged into and removed from the 500,000-gallon above ground storage tank (i.e., the "fully enclosed unit"). The volumes must be obtained from calibrated totalizer flow meters. Table 1 contains the frequency, flow rates, and levels to monitor and report. Results must be reported in the quarterly and annual Monitoring Reports.

Table 1
Discharges Into and Out of the Fully Enclosed Unit

Parameters	Units	Frequency
Totalized volume discharged into the fully enclosed unit	Gallons per day	Monthly
Totalized volume removed from the fully enclosed unit	Gallons per day	Monthly
Minimum freeboard	Feet & tenths of feet	Weekly

Sulfur Leachate Monitoring of the Fully Enclosed Unit

The Discharger must monitor the leachate discharged into the fully enclosed unit. Results must be reported quarterly and annually. Leachate must be sampled for the field and analytical parameters as outlined in Table 2, below:

Table 2
Sulfur Leachate Monitoring

Field Parameters	Units	Frequency
Temperature	^{o}C	Quarterly
Specific Conductance	umhos/cm	Quarterly
pH	SU	Quarterly
Dissolved oxygen	mg/L	Quarterly
Monitoring Parameters		
Major Anions (See Table 6)	mg/L	Quarterly
Major Cations (See Table 6)	mg/L	Quarterly
Sulfur, total (EPA 200.7)	mg/	Quarterly
Total Dissolved Solids (EPA 160.1)	mg/L	Quarterly
Dissolved Metals (See Table 6)	mg/L	Annually

Groundwater Monitoring

The Discharger must operate and maintain a groundwater monitoring system in accordance with a Monitoring Program and Sample Collection and Analysis Plan approved by the Executive Officer. Monitoring must be reported quarterly and annually. The Discharger must collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan and the MRP. Under this MRP, the groundwater monitoring wells include MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and any additional wells installed thereafter. The groundwater gradient and flow direction must be determined quarterly. In addition, groundwater samples must be collected, analyzed, and reported for the monitoring parameters in accordance with the methods and frequency specified in Table 3.

Table 3
Groundwater Monitoring

Field Parameters	Units	Frequency
Groundwater Elevation	Ft., & hundredths, MSL	Quarterly
Temperature	^{o}C	Quarterly
Specific Conductance	umhos/cm	Quarterly
pH	SU	Quarterly
Dissolved oxygen	mg/L	Quarterly
Monitoring Parameters		
Major Anions (See Table 6)	mg/L	Quarterly

Table 3
Groundwater Monitoring

Major Cations (See Table 6)	mg/L	Quarterly
Sulfur, total (EPA 200.7)	mg/	Quarterly
Total Dissolved Solids (EPA 160.1)	mg/L	Quarterly
Dissolved Metals (See Table 6)	mg/L	Annually

Surface Water Monitoring

The Discharger must sample and analyze surface water at points as approved by the Executive Officer. Surface water monitoring must be reported quarterly and annually. For all monitoring points and background monitoring points assigned to surface water monitoring, samples must be collected, analyzed, and reported for the monitoring parameters in accordance with the methods and frequency specified in Table 4.

Table 4
Surface Water Monitoring

Field Parameters	**Units**	**Frequency**
Temperature	^{o}C	Two storm events as described in the
Specific Conductance	µmhos/cm	industrial general permit
pH	pH number	
Dissolved oxygen	mg/L	
Monitoring Parameters		
Major Anions (See Table 6)	mg/L	Two storm events as described in the
Major Cations (See Table 6)	mg/L	industrial general permit
Sulfur, total (EPA 200.7)	mg/L	
Total Dissolved Solids (EPA 160.1)	mg/L	
Total Suspended Solids (EPA 160.2)	mg/L	

Tunnel Water Monitoring

The Discharger must sample and analyze the tunnel water at points as approved by the Executive Officer. Tunnel water analytical results must be reported quarterly and annually. Tunnel water samples must be analyzed for the parameters and frequencies as shown in Table 5, below:

Table 5
Tunnel Water Monitoring

Field Parameters	Units	Frequency
Temperature	^{o}C	Quarterly
Specific Conductance	umhos/cm	Quarterly
pH	SU	Quarterly
Dissolved oxygen	mg/L	Quarterly
Monitoring Parameters		
Major Anions (See Table 6)	mg/L	Quarterly
Major Cations (See Table 6)	mg/L	Quarterly
Sulfur, total (EPA 200.7)	mg/	Quarterly
Total Dissolved Solids (EPA 160.1)	mg/L	Quarterly
Dissolved Metals (See Table 6)	mg/L	Annually

Analytical Methods

Table 6 contains analytical methods for metals and miscellaneous analytes.

Table 6
Analytical Methods for Metals and Miscellaneous Analytes

Parameter	Units	USEPA Method
Aluminum	mg/L	6010
Barium	mg/L	6010
Beryllium	mg/L	6010
Chromium	mg/L	6010
Cobalt	mg/L	6010
Copper	mg/L	6010
Silver	mg/L	6010
Tin	mg/L	6010
Vanadium	mg/L	6010
Zinc	mg/L	6010
Iron	mg/L	6010
Manganese	mg/L	6010
Antimony	mg/L	6020
Arsenic	mg/L	6020
Cadmium	mg/L	6020
Nickel	mg/L	6020
Selenium	mg/L	6020
Thallium	mg/L	6020
Lead	mg/L	7421
Mercury	mg/L	7470A
Major anions and sulfate (bicarbonate, carbonate, chloride, sulfate)	mg/L	300 Series
Major cations (calcium, magnesium, sodium, potassium)	mg/L	6010
Sulfur, total	mg/L	200.7

Facility Monitoring

Off-Site Disposal of Leachate

Leachate that is disposed to an off-site facility must be tracked. The volume of leachate, name of the hauler, and name of the disposal facility must be reported in the quarterly report for the quarter when the disposal occurred.

Storm Events

The Discharger must inspect the tunnel and all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events. Necessary repairs must be completed **within 30 days** of the inspection and must be reported in the quarterly report when the inspection and the repairs were completed. The Discharger must report any discharge of sulfur-contact water onto bare earth, outside the stockpile area, in the conveyance tunnel, and/or overtopping of the berms. The Discharger must i**mmediately notify Board staff verbally** of the finding and **provide** written notification by certified mail **within seven days** of such determination. The Discharger must report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs. Monitoring after storm events must be reported in the quarterly report for the quarter in which the inspection was performed.

Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger must conduct an inspection of the facility. The inspection must assess damage to the drainage control system, and groundwater monitoring equipment (including wells, etc.). Any necessary construction, maintenance, or repairs must be completed by **31 October**. By **15 November** of each year, the Discharger must submit an annual report describing the results of the facility inspection and the repair measures implemented, including photographs of the problem and the repairs.

REPORT CONTENTS AND REPORT SUBMITTAL DATES

The Discharger must submit quarterly, annual, facility, and response to release monitoring reports. The Discharger must fully disclose and report all monitoring data and all relevant information as required in this MRP.

In reporting monitoring data, the Discharger must arrange the data in tabular form so that the date, sample type (*e.g.*, effluent, soil, *etc*.), and reported analytical result for each sample are readily discernible. The data must be summarized in such a manner to clearly illustrate compliance with the cleanup and abatement order and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required by the MRP must be reported in the quarter in which monitoring occurred.

A letter transmitting the self-monitoring reports must accompany each report. Such a letter must include a discussion of any violation found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the

Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective action, reference to the previous correspondence will be satisfactory. The transmittal letter must contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent:

> *"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports must be prepared under the direct supervision of a Registered Engineer or Geologist and signed and stamped by the registered professional.

Reports that do not comply with the required format will be **REJECTED** and the Discharger must be deemed to be in noncompliance with the cleanup and abatement order. Reports must include the information listed below in addition to the results of monitoring required by the MRP.

A. Reporting Due Dates

The following two tables contain due dates for submittal of reports.

Quarterly Monitoring Reports

Report Type	Sampling Frequency	Reporting Period	Date Due
Quarterly	Weekly/monthly/quarterly	1 January – 31 March	**30 April**
		1 April – 30 June	**31 July**
		1 July – 30 September	**31 October**
		1 October – 31 December	**31 January**

Other Reports

Annual Monitoring Summary Report	**31 January** of each year
Facility Monitoring Report	**15 November** of each year
Response to a Release	As necessary

B. Quarterly Monitoring Reports

Each Quarterly monitoring report must include all water quality data, field data, inspections, and observation collected during the reporting period and submitted per the **Reporting Due Dates** in Section A of this MRP. Quarterly monitoring reports must include the results of all monitoring performed for the quarter and the information listed below:

1. The Discharger must determine and report the groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored pursuant to this MRP. Results must be reported quarterly, including the times of highest and lowest elevations of the water levels in the wells.
2. The monitoring parameters must be evaluated each quarterly reporting period with regards to the cation/anion balance, and the results must be graphically presented using a Stiff diagram, a Piper graph, or Schueller plot.
3. In reporting the monitoring data, the Discharger must arrange the data in tables so that the date, the constituents, the concentrations, units, and compliance are readily discernible. The data must be summarized in such a manner so as to illustrate clearly the compliance with the cleanup and abatement order or lack thereof. All historical and current analytical results must be tabulated and submitted.
4. A discussion of the monitoring results, including notations of any water quality violations must precede any tabular summaries.
5. The Discharger must include a site map showing the facility features, existing and historical monitoring wells, direction of groundwater flow, and stormwater and surface water monitoring locations.
6. The Discharger must include hard copies of all analytical reports as signed by the laboratory director.
7. The Discharger must include the monitoring well data sheets, including the date and time, type of pump, purging and sampling method, and water disposal method.
8. The Discharger must provide a description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person taking the samples, and any other observations).
9. The Discharger must report any sulfur leachate that has been disposed at an off-site facility.
10. The Discharger must report any monitoring performed after storm events.

C. Annual Monitoring Summary Report

The Discharger must submit an Annual Monitoring Summary Report to the Board covering the previous monitoring year. The annual report must contain the monitoring results, information required in the quarterly monitoring report, and the additional information as defined below:

a. Tabular summaries of all data collected during the year.

b. For each monitoring well, the Discharger must submit time-series graphs showing analytical data for all historical samples (i.e., 1991 through the current year). Each time-

series graph must plot the concentration of one or more constituents for the period of record for a given monitoring well at a scale appropriate to show trends or variations in water quality. The graphs must plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

c. The Discharger must include a comprehensive discussion of the compliance record, any planned corrective actions, and the result of any implemented corrective actions.

d. The Discharger must include a written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

e. Hydrographs of each well must be prepared quarterly and submitted annually. The hydrographs must show the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake.

f. A database of electronic Excel tables must be submitted on a CD that must include the historical and current analytical results, the analyte, test method, units, PQL, MDL, qualifiers, dates, and sample identification numbers. Numbers must be presented as numbers, not text. In the tables, non-detects must be represented by "ND" or the symbol "<" followed by the MDL. Lab qualifiers must be defined. In addition, all historical data for 1991 through the current year must be submitted in the electronic Excel tables. The database format must be acceptable to the Regional Water Board so that statistical analysis may be performed.

g. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

D. Facility Monitoring Report

The Facility Monitoring Report must show the results of the facility inspection, completed repairs, and a schedule for repairs not already finished.

E. Response to a Release

The Discharger must immediately notify the Board verbally and must provide written notification by certified mail within seven days upon the determination that a release has occurred.

The Discharger must implement the above monitoring program on the effective date of this Order.

PAMELA C. CREEDON, Executive Officer

(Date)